# Agenda

1. Summary of December 31, 2015 Valuation
2. Historical Results
3. Projected Future Results

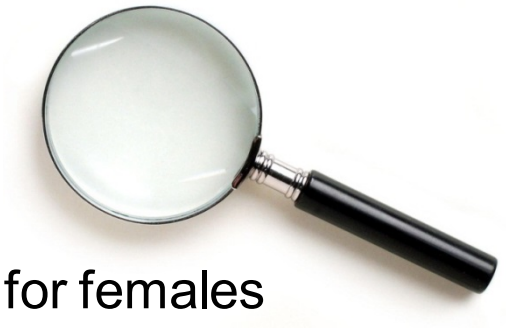
# Summary of December 31, 2015 Valuation

- The 30-year total plan contribution rate is 33.07% of payroll as of December 31, 2015, up from 31.82% last year.
  - Plan experience during the year, including the smoothing of investment gains and losses, increased this percentage by 0.81%.
  - The assumption changes increased this by 0.44%.
- The weighted projected average contribution rate for the Plan is 27.97% of pay (This was 27.92% last valuation). Thus there is a shortfall of 5.10% of pay, compared to the calculated rate with 30-year amortization.
- The effective amortization period for the unfunded actuarial accrued liability (UAAL) is 72.5 years, up from 55.7 years in the prior valuation.
  - Plan experience during 2015 increased the effective period by 6.7 years.
  - The assumption changes increased the period by 16.8 years.

**On a 40-year amortization basis the plan contribution is 30.67%, a shortfall of 2.70%. (The 40-year basis is the minimum PRB target).**

# Summary of December 31, 2015 Valuation

- There are no plan changes included for the first time in this valuation.
- The *assumption changes* included in this valuation include:
  - A lower discount rate of 7.75% (previously 8.00%)
  - Updated mortality tables to RP 2014 (set forward three years for healthy retirees), including projection for future longevity improvement using MP 2015
  - Lower duty death assumption for Police from 25% to 10%
  - Revised retirement and DROP utilization rates
  - Lower inflation, salary scales and payroll growth rate
  - Adjusted loads for overtime, other pay and sick leave
  - Modified turnover and disability rates
  - Reduced percent married to 80% for males and 60% for females
  - Set spousal age to four years younger for male participants and same age for female participants
  - Set assumed administrative expenses at $3 million per year

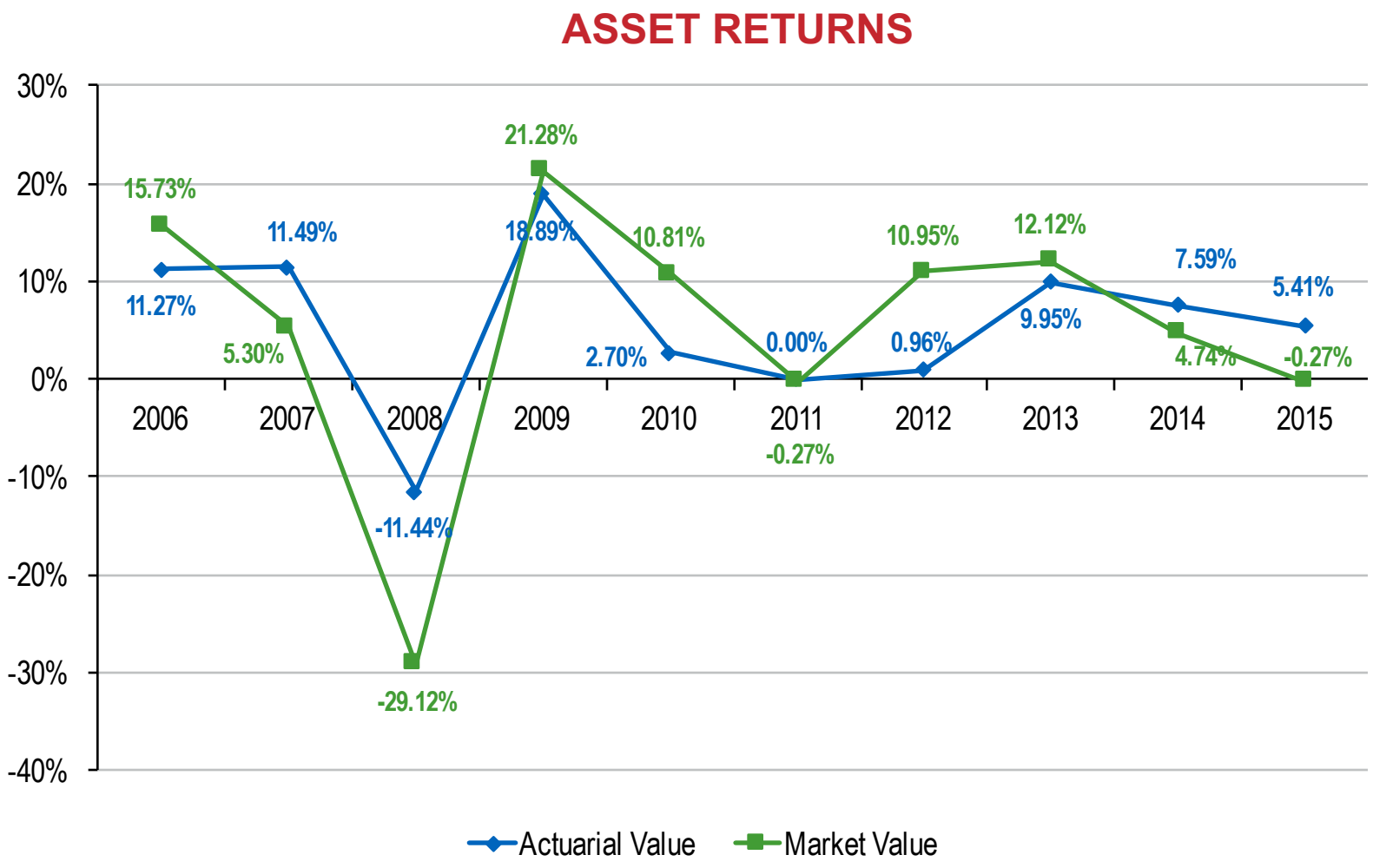


# Summary of December 31, 2015 Valuation

| | As of 12/31/2014 | As of 12/31/2015, Prior to Assumption Changes | As of 12/31/2015, with Assumption Changes |
|---|---|---|---|
| Total Normal Cost, adjusted for timing | $45,449,711 | $47,300,557 | $47,352,942 |
| Normal Cost as a % of Pay | 11.66% | 11.64% | 11.71% |
| Actuarial Accrued Liability | $3,365,534,522 | $3,513,125,879 | $3,553,200,981 |
| Actuarial Value of Assets | $2,094,381,418 | $2,154,874,311 | $2,154,874,311 |
| Unfunded Liability | $1,271,153,104 | $1,358,251,568 | $1,398,326,670 |
| Funded Ratio | 62.2% | 61.3% | 60.6% |
| Effective Period to Amortize Liability | 55.7 years | 62.4 years | 72.5 years |
| Projected Payroll | $389,527,874 | $406,245,967 | $404,303,585 |
| **Contribution Using a 30-year level % of pay amortization** | **31.82%** | **32.63%** | **33.07%** |
| Projected Average Plan Contribution Rate | 27.92% | 27.94% | 27.97% |

# Historical Results:

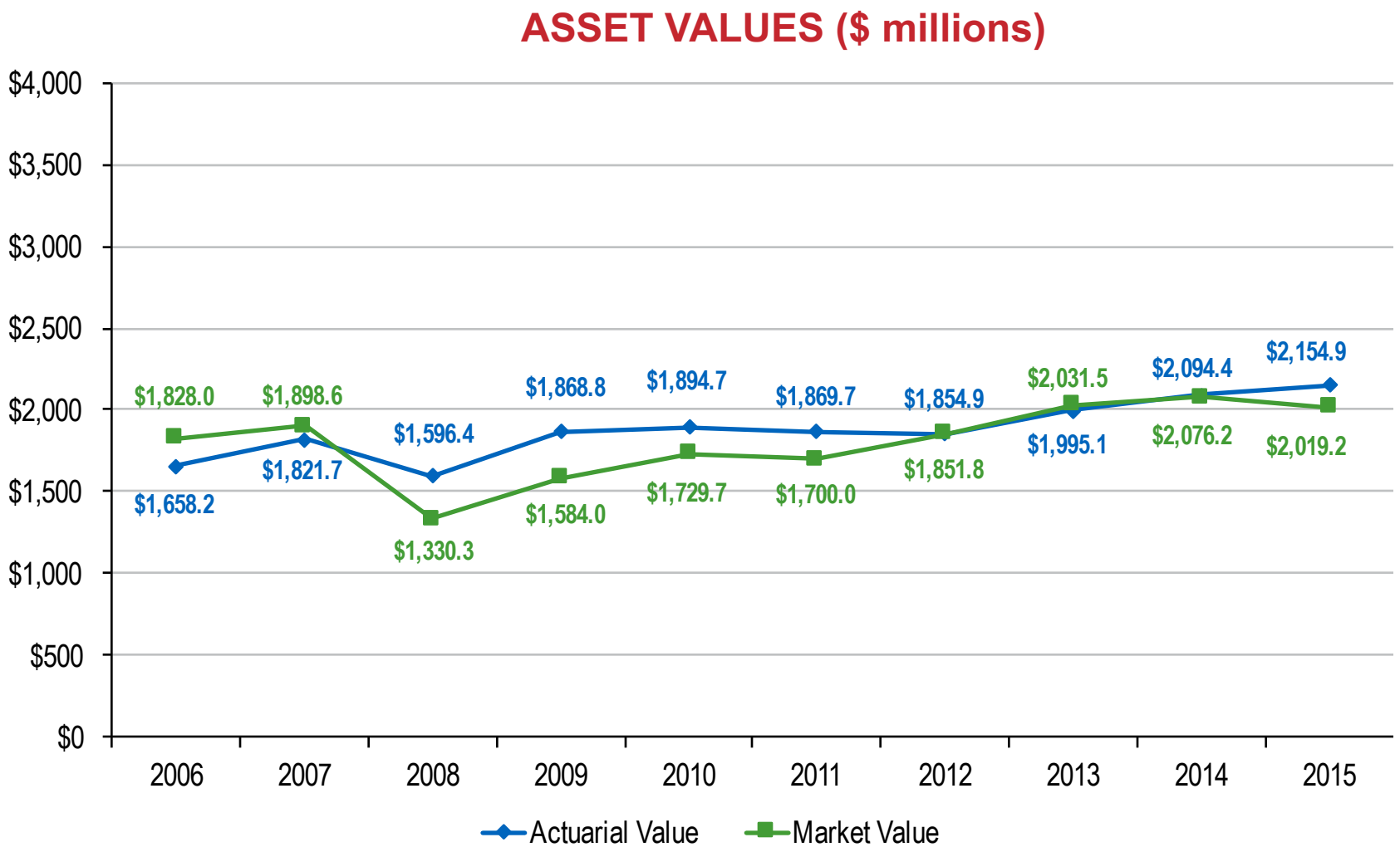
*Actuarial Rate of Return vs. Market Rate of Return*




Plan Years Ended December 31, 2006 – 2015

# Historical Results:

*Actuarial Value of Assets vs. Market Value of Assets*

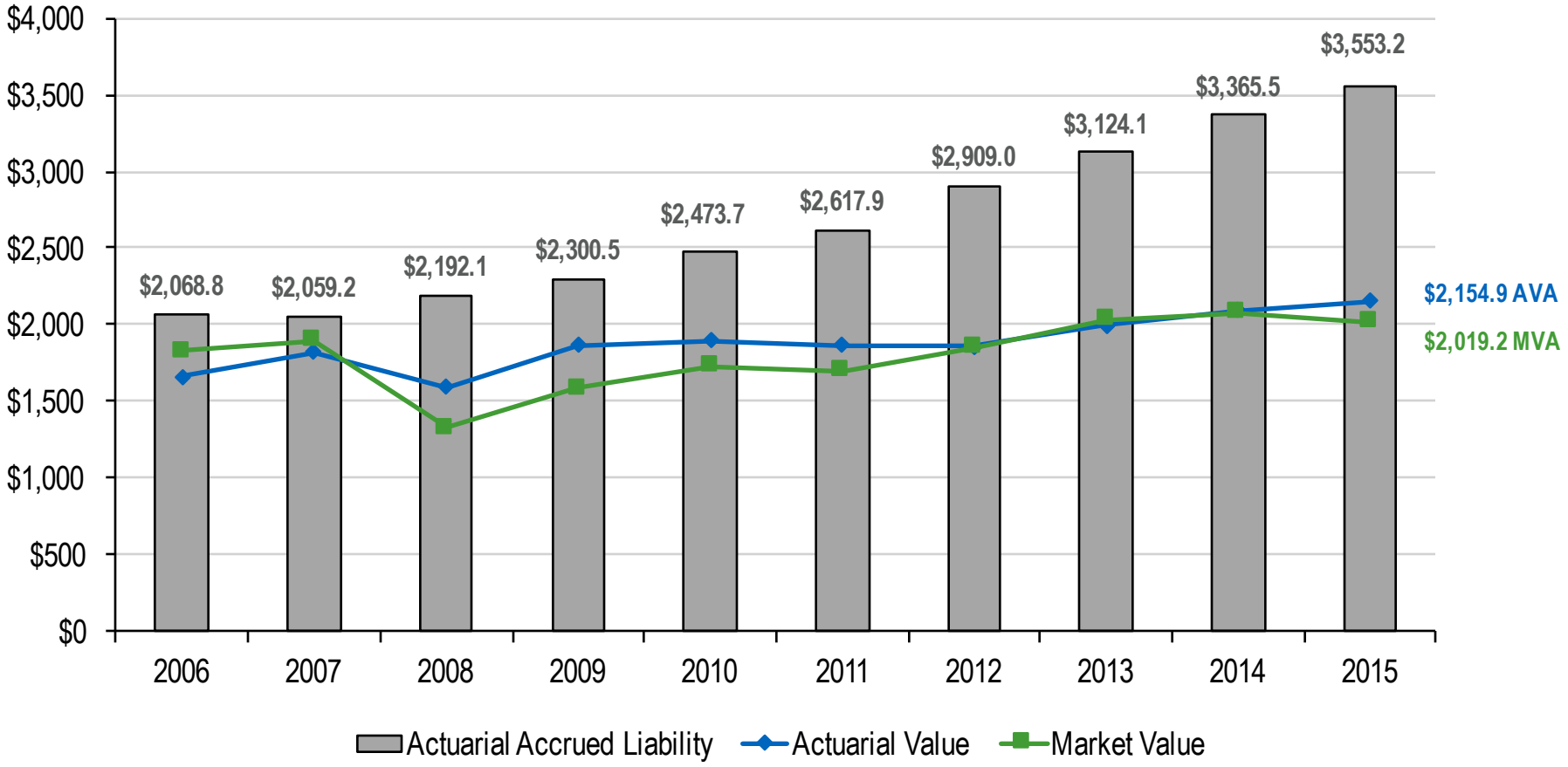



Plan Years Ended December 31, 2006 – 2015

# Historical Results:

*Actuarial Accrued Liability Compared to Assets*

## ASSET AND ACTUARIAL ACCRUED LIABILITY VALUES ($ millions)

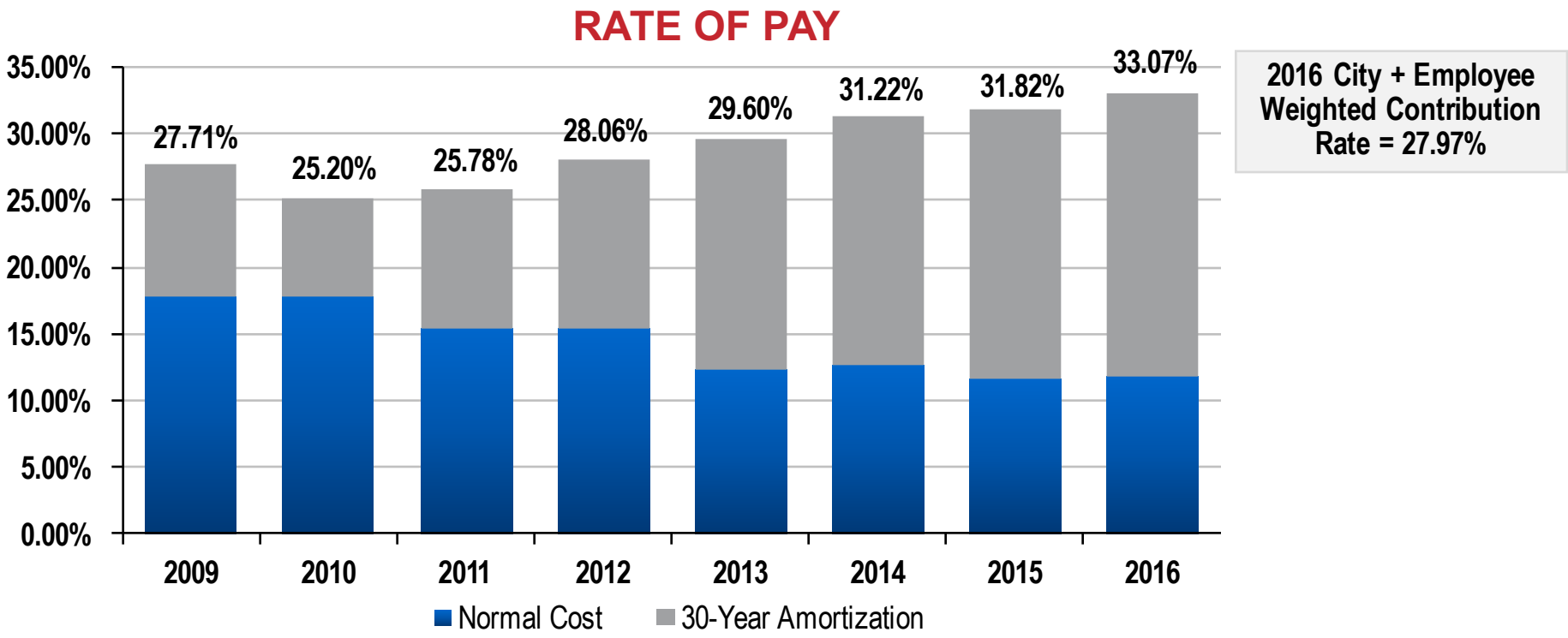



Plan Years Ended December 31, 2006 – 2015

# Historical Results:

*Total Cost, With 30-Year Level %-of-Pay Amortization*

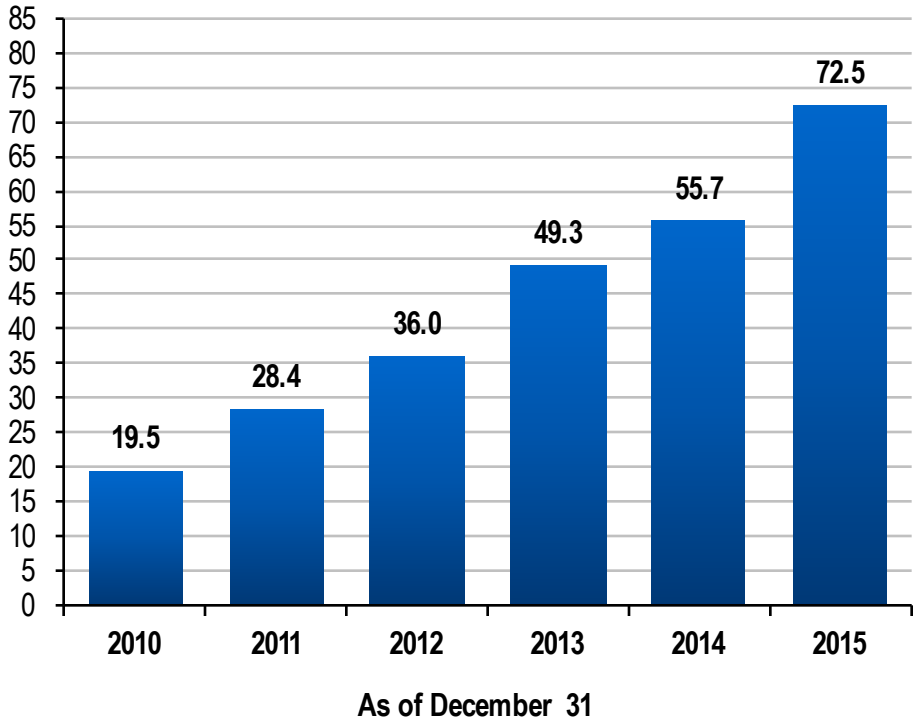
The actuarial cost method employed by the Fund recognizes all changes in benefit provisions in the normal cost immediately. Since 2009, the normal cost has decreased from 17.8% of pay to 11.7%. However, the total cost has risen in recent years because of increased unfunded liabilities. These unfunded liability increases are largely attributable to (1) recognition of market investment losses from 2008 and 2011, (2) assumption changes based on the experience review, and (3) the granting of 2% lifetime COLAs to future service of existing employees and to past service for anyone who changed COLA programs during the City's COLA election periods.



# Historical Results:

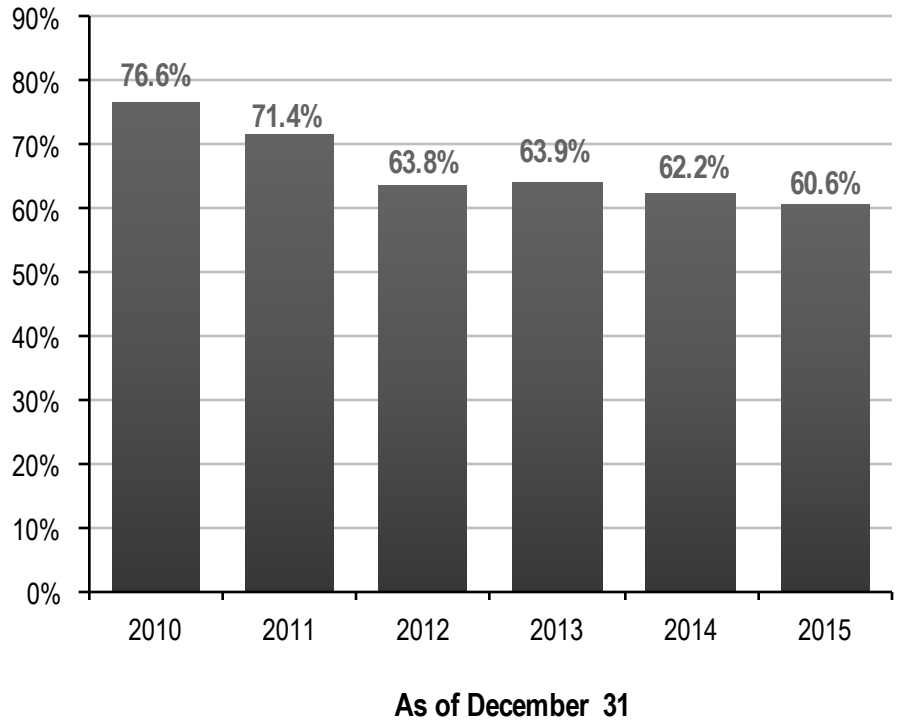
*Amortization Period and Funding Ratio*

## AMORTIZATION PERIOD (Years)




Current Effective Amortization Period = 72.5 years

## FUNDED RATIO




Current Funded Ratio = 60.6%

The increase in amortization period and decrease in funded ratio are primarily due to the change in assumptions and the year-end 2015 investment return being less than expected.

# Projected Future Results

- The following chart provides estimated future results, assuming no additional gains or losses in future years (i.e., current unrecognized investment gains and losses are phased in, and the future market rate of return is 7.75%)

| Valuation Year | Effective Amortization Period* | Funded % (AV) | Funded % (MV) |
|---|---|---|---|
| 2016 | 72.5 | 60.6% | 56.8% |
| 2017 | 89.4 | 59.7% | 56.6% |
| 2018 | Infinite | 58.7% | 56.5% |
| 2019 | Infinite | 57.4% | 56.5% |
| 2020 | Infinite | 56.5% | 56.5% |
| 2021 | Infinite | 56.4% | 56.4% |
| 2022 | Infinite | 56.3% | 56.3% |
| 2023 | Infinite | 56.0% | 56.0% |
| 2024 | Infinite | 55.7% | 55.7% |
| 2025 | Infinite | 55.4% | 55.4% |
| 2026 | Infinite | 55.0% | 55.0% |

*As deferred asset losses are recognized, the effective amortization period becomes infinite. If the assets were reset to market value, the effective amortization period would be immediately infinite.

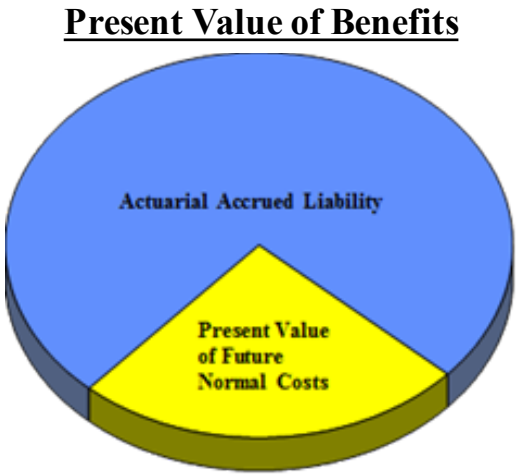
# Projected Future Results

- The following chart provides estimated future results, assuming no additional gains or losses in future years (i.e., current unrecognized investment gains and losses are phased in, and the future actuarial rate of return is 7.75%)

| Valuation Year | Effective Amortization Period | Funded % (AV) |
|---|---|---|
| 2016 | 72.5 | 60.6% |
| 2017 | 71.5 | 60.6% |
| 2018 | 70.5 | 60.7% |
| 2019 | 69.5 | 60.9% |
| 2020 | 68.5 | 61.1% |
| 2021 | 67.5 | 61.2% |
| 2022 | 66.5 | 61.3% |
| 2023 | 65.5 | 61.2% |
| 2024 | 64.5 | 61.2% |
| 2025 | 63.5 | 61.2% |
| 2026 | 62.5 | 61.1% |

# A Quick Lesson on Actuarial Cost Methods

- In general, a cost method allocates the present value of benefits between future normal costs and past accrued liability.
- The Fund uses the Ultimate Entry Age Normal Cost Method for funding.
- The present value of benefits (PVB) does not change when plan changes are made that lower benefits for new hires only. However, the normal cost calculation fully reflects the provisions for new hires. Thus, the portion of the PVB allocated to the present value of normal costs (PVNC) decreases, which in turn increases the actuarial accrued liability (AAL).
- When plan changes are made for future service of existing employees, the PVB decreases. This can decrease both the AAL and the PVNC.




- The actuarial value of assets covers a portion of the actuarial accrued liability; the balance is called the unfunded actuarial accrued liability.
- Recommended contributions are calculated so as to pay one year of normal cost and an amortization payment on the unfunded liability.

# The Small Print

- This presentation is intended for the use of the Fort Worth City Council and the Board of Trustees for the City of Fort Worth Employees' Retirement Fund, and supplements Segal Consulting's full valuation report for the Fund as of December 31, 2014, dated May 28, 2015. The valuation report is available on the Fund's website.
- Please refer to the full valuation report for a description of assumptions and plan provisions reflected in the results shown in this presentation. The report will also include more comprehensive information regarding the Fund's membership, assets, and experience during the most recent plan year.
- Projections, by their nature, are not a guarantee of future results. They are intended to serve as estimates of future financial outcomes that are based on assumptions about future experience and the information available to us at the time the modeling is undertaken and completed. The projected future results included in this presentation show how the Fund would be affected if specific investment return, salary, mortality, turnover, disability and retirement assumptions are met. Actual results may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment.
- Disclosures for GASB Statements 67 and 68 will be provided separately, after the September 30th fiscal year-end for the Fund.
- The calculations included in this presentation were completed under the supervision of Leon F. (Rocky) Joyner, FCA, ASA, MAAA, EA and Deborah K. Brigham, FCA, ASA, MAAA, EA.

# Questions?